

REMARKS

I. Status of the Claims

Claims 27-52 are pending in this application. Without prejudice or disclaimer, Applicants have amended claims 27, 40, and 45. Specifically, claim 27 has been amended to expressly recite that pressing the inner surface of the tyre against the outer surface of the toroidal support comes before pressing an outer surface of the tyre against walls of a molding cavity defined in a vulcanization mold and that both the primary and secondary working fluids are providing pressure to opposing surfaces of the tyre when pressing the inner surface of the tyre against the outer surface of the toroidal support. Likewise, claims 40 and 45 have been amended to expressly recite that which had already been inherent, i.e., that the respective apparatuses comprise a toroidal support, and to further recite that the apparatuses are adapted to provide simultaneously both primary and secondary working fluids under pressure. Applicants submit that the specification, drawings, and claims as originally filed support this amendment. Thus, no new matter has been presented.

II. Rejections Under 35 U.S.C. § 112, ¶ 2

The Examiner rejects claims 31 and 40-52 under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. July 21, 2008, Office Action at 2. With respect to claim 31, the Examiner argues that "the antecedent for 'the pressure' is ambiguous given that both claims 27 and 30 define a 'pressure' of the primary working fluid and it is not clear which is intended." *Id.* Applicants respectfully disagree. Claim 27 recites that the at least one primary work fluid and the at least one secondary working fluid are

under pressure. Claims 30, which depends from claim 27, merely clarifies the relationship between the "pressure of the at least one primary working fluid" and pressure of the at least one secondary working fluid." Namely, that one is greater than the other. Claim 31 explicitly recites that its "16 bars" limitation applies only to "the pressure of the at least one primary working fluid;" not the pressure of the at least one secondary working fluid. Applicants respectfully submit that one skilled in the art would readily understand from claims 27 and 30 that the pressure of the at least one primary working fluid recited in claim 31 is the pressure of the at least one primary working fluid pressing the outer surface of the tyre against the walls of the molding cavity. Accordingly, Applicants respectfully submit that this rejection is in error and should be withdrawn.

In claims 40 and 45, the Examiner argues that "the 'passage device' is defined as formed through the toroidal support but the claim does not clearly define that the apparatus includes the toroidal support." *Id.* Although Applicants disagree with the Examiner, in an effort to expedite prosecution, claims 40 and 45 has been amended to expressly recite that the respective apparatuses comprise a toroidal support. Accordingly, Applicants respectfully submit that this rejection is now rendered moot and should be withdrawn.

III. Rejections Under 35 U.S.C. § 103(a)

A. The Examiner rejects claims 27-50 and 52 under 35 U.S.C. § 103(a) as allegedly "being unpatentable over" U.S. Patent No. 1,394,928 to Midgley et al. ("Midgley") in view of U.S. Patent Nos. 6,409,959 to Caretta et al. ("Caretta") and

1,407,839 to Clinefelter et al. ("Clinefelter"). See July 21, 2008, Office Action at 3-6. Specifically, the Examiner argues the Midgley "discloses a process as required by claim 27 except that it does not also apply the fluid pressure in a diffusion gap between the tire and support." *Id.* at 3. The Examiner relies upon Caretta and Clinefelter to allegedly cure this deficiency. See *id.* at 3-4.

Applicants respectfully traverse this rejection for at least the following reasons.

With respect to obviousness, several basic factual inquiries must be made in order to determine the obviousness or non-obviousness of claims under 35 U.S.C. § 103. These factual inquiries, set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1966), require the Examiner to:

- (1) Determine the scope and content of the prior art;
- (2) Ascertain the differences between the prior art and the claims in issue;
- (3) Resolve the level of ordinary skill in the pertinent art; and
- (4) Evaluate evidence of secondary considerations.

The obviousness or nonobviousness of the claimed invention is then evaluated in view of the results of these inquiries. *Graham*, 383 U.S. at 17-18, 148 U.S.P.Q. at 467; see also *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1730, 82 U.S.P.Q.2d 1385, 1388 (2007).

Indeed, to establish a *prima facie* case of obviousness, the Examiner must:

make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight

must be avoided and the legal conclusion must be reached
on the basis of the facts gleaned from the prior art.

M.P.E.P. § 2142. “The key to supporting any rejection under 35 U.S.C. § 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious.” *Id.* It is important to note, moreover, that the prior art references relied upon in a rejection “must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention,” when such reasons are articulated by the Examiner. M.P.E.P. § 2141.03(VI) (emphasis in original); *see also Graham*, 383 U.S. at 17, 148 U.S.P.Q. at 467.

Here, the Examiner has not established a *prima facie* case of obviousness because the claimed invention as a whole would not have been obvious in view of Midgley, Caretta, and Clinefelter, when considered as a whole. In particular, the references fail to teach or suggest each and every limitation of the claimed invention. Moreover, one skilled in the art would not have been motivated to combine Midgley with Caretta or Clinefelter in such a way to result in the claimed invention.

Applicants acknowledge that Caretta discloses “admitting a fluid under pressure into the space defined by an inner surface of the tire in order to press the outer surface of the green tire against the walls of the moulding cavity.” Caretta, col. 3, lines 12-15. Further, Applicants acknowledge that Clinefelter similarly discloses passing pressurized fluid through apertures so that the tire is expanded outwardly against the molding cavity. *See Clinefelter*, page 2, lines 10-14 and Figure 3. Neither reference, however, discloses **a secondary working fluid for pressing the inner surface of the tire** against the outer surface of the toroidal support. Further, neither reference discloses **at least one primary working fluid to provide heat and pressure to the inner surface**

of the tyre, when a secondary working fluid presses the inner surface of the tire against the outer surface of the toroidal support.

The Examiner's reliance on Midgley for this missing teaching is unavailing. Unlike the claimed invention that uses working fluids to apply pressure, Midgley discloses a preferred two-stage process, wherein the tire casing is kept under mold pressure during both the regional and final vulcanizations by applying mechanical means (as opposed to the hydraulic means of a working fluid) to the surfaces of the tyre. See Midgley at page 1, lines 79-90. For example, Midgley describes applying pressure to the tire casing via side plates by physically contracting a top plate. See *id.* at page 3, lines 5-40 and Figures 3 and 4. Further for example, hydraulic pressure is used to hold together the rigid mold members that enclose the casing. See *id.* at page 3, lines 44-55 and Figure 5.¹

The Examiner, however, argues the Midgley "disclose[s] a method of molding and curing a tire including . . . pressing an inner surface of the tire against an outer surface of the support by a fluid under pressure (esp. page 2, lines 35-38; page 5, lines 37-41; fig. 10)." July 21, 2008, Office Action at 3. Applicants respectfully disagree with the Examiner that a fluid under pressure is applied in Midgley in order to press an inner surface of the tire against an outer surface of the support. Specifically, page 2, lines 35-38 and page 5, lines 37-41 of Midgley merely state the following:

¹ Note while Midgley teaches hydraulic pressure, such pressure is not applied to the surfaces of the tyre, as required by the claims, but to rigid mold members applied to the surfaces of the tyre.

During the regional vulcanization in the last named process, air pressure may, or may not be introduced into the heater as found desirable.

. . . .

The outside of the casings may be subjected during this part of the process to the action of compressed air to prevent "blowing" due to the expansion of entrapped gases.

The Examiner appears to be equating this disclosure with the claimed secondary working fluid under pressure, which presses the inner surface of the tyre against the outer surface of the toroidal support. *See* Claim 27. The compressed air disclosed in Midgley, however, works in a completely different way than the claimed secondary fluid under pressure. Specifically, the first teaching of Midgley relied upon by the examiner merely states that air pressure may be introduced into the heater, just as it teaches steam may be introduced in order to cause vulcanization. Nothing in Midgley teaches that the introduction of the air pressure into the heater in any way results in pressure being applied to the surface of the tyre. There is simply no teaching or suggestion of passageways or other devices for introducing the fluid to the surface of the tire. The second teaching of Midgley relied upon by the Examiner merely states that the application of the compressed air prevents "blowing." Again, there is no teaching that the inner surface of the tire is to be pressed against an outer surface of the support. Accordingly, Midgley fails to teach or suggest the claimed secondary working fluid.

Moreover, Midgley does not teach or suggest the use of a second, opposing working fluid, i.e., the at least one primary working fluid to provide heat and pressure to the inner surface of the tyre. There is no recognition by Midgley that a separate opposing force is needed or advisable. In fact, only Applicants discovered that adding

what would otherwise appear to be an unnecessary, complex feature to the process, in fact provides added benefits such as lowering cycle time (since the pressure of the primary working fluid does not have to start from zero when it presses the tyre against the mold, and provides additional heat for vulcanization) and an improved product (by reducing small movement in critical regions of the tyre such as the bead and liner).

Likewise with respect to dependent claim 30, the claim recites, in part, that “a pressure of the at least one secondary working fluid is greater than a pressure of the at least one primary working fluid.” Nothing in Midgley nor Caretta and Clinefelter suggest using a pressure differential such that the pressure of the compressed air disclosed in Midgley would be greater than the pressure of the working fluids disclosed in Caretta and Clinefelter.

The Examiner, however, counters that “[t]he particular pressures chosen would have been readily and routinely selected by the ordinary artisan through routine optimization for only the expected results.” July 21, 2008, Office Action at 4. Essentially, the Examiner appears to be arguing that the pressure differential is a result-effective parameter and one skilled in the art would have been motivated to select and optimize the different pressures for the primary and secondary working fluids. M.P.E.P. § 2144.05(II)(B) requires that “[a] particular parameter must first be recognized as a result-effective variable . . . before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation.” (Citing *In re Antonie*, 559 F.2d 618, 195 U.S.P.Q. 6 (C.C.P.A. 1977) (emphasis added)).

Contrary to the Examiner’s position, Midgley does not recognize the pressure differential as a result-effective parameter. In fact, Midgley does not even mention what

actual pressures may be used for the air pressure introduced into the heater or the compressed air applied to prevent “blowing.” Indeed, it is possible that these pressures could be less than the pressures used for the working fluids disclosed in Caretta and Clinefelter, and still work for its intended use. Because Midgley fails to recognize the claimed pressure differential as a “result-effective parameter,” the pressure differential cannot be deemed a result-effective variable that can be readily optimized by a person of skill in the art. See *Ex parte Beer*, Appeal No. 1996-0044, 1996 WL 1748764, at *2 (Bd. Pat. App. & Int. Apr. 15, 1999) (“The determination of a specific parameter can be an obvious expedient only when the art appreciates that said parameter is a result effective variable.” (emphasis added)). Accordingly, even assuming *arguendo* that one skilled in the art was motivated to combine Midgley with Caretta and Clinefelter, there is no suggestion to select and optimize the pressure differential recited in dependent claim 30.

With respect to apparatus claims 40 and 45, neither Midgley, Caretta, nor Clinefelter teaches or suggests an apparatus that is adapted to feed simultaneously both at least one primary working fluid under pressure and at least one secondary working fluid under pressure to opposing sides of the tyre. Applicants submit that for the reasons provided above, there is also no motivation to do so.

Because the cited references fail to teach or suggest each and every limitation of the claimed invention, and further because nothing in the cited references suggests combining them in such a way to result in the claimed invention, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness. Accordingly, the rejection should be withdrawn.

B. The Examiner rejects claim 51 under 35 U.S.C. § 103(a) as allegedly “being unpatentable over” Midgley in view of Caretta and Clinefelter, as applied above, and further in view of U.S. Patent No. 6,350,402 to Kobayashi (“Kobayashi”). See July 21, 2008, Office Action at 3-6.

Applicants respectfully traverse for at least the following reasons. For the reasons discussed above, Midgley, Caretta, and Clinefelter do not render obvious claims 27-50 and 52. Because claim 51 depends from claim 50, Midgley, Caretta, and Clinefelter also do not render obvious claim 51 for these same reasons, and Kobayashi does not cure the deficiencies of these references. Accordingly, for at least this reason, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness and the rejection should be withdrawn.

C. Applicants do not necessarily agree with the Examiner’s characterization of the cited prior art not relied upon by the Examiner, which he “consider[s] pertinent to applicant’s disclosure.” July 21, 2008, Office Action at 6. If and when the Examiner applies these references, Applicants will address them at that time.

IV. Conclusion

In view of the foregoing amendments and remarks, Applicants submit that the claimed invention is neither anticipated nor rendered obvious in view of the prior art references cited against this application.

If the Examiner believes a telephone conference could be useful in resolving any of the outstanding issues, she is respectfully urged to contact Applicants' undersigned counsel at 202-408-4152.

If there is any fee due in connection with the filing of this Statement, please charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

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